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From: Esty, Benjamin <besty@hbs.edu>
Sent: Thursday, October 17, 2013 1:38 PM
To: Tisa, Kimberly
Subject: Lexington Estabrook School & PCB Testing
Attachments: Estabrook Air Sample Results 6-27-13.pdf; Estabrook Air Sample Results 8-1-13.pdf; EH&E Memo dated 9-6-13.pdf

Importance: High

Dear Ms. Tisa,

I am glad to see that our government in general and the EPA in particular are back to work!

As discussed in previous emails and by phone, I am concerned about the PCB testing schedule at Lexington's Estabrook School and the disturbing results in Room #4 and potentially in Room #6 (in full disclosure, my son is in room #6)--these rooms house the smallest and youngest children (kindergarten and first grade, respectively).

Attached are the reports from the most recent air tests, both of which note the next round of testing will occur in October, yet my most recent email communication from Mr. Goddard (dated 10/2/13) suggests the tests won't be conducted until the first or second week in November. When I raised this issue at the last school committee meeting, the committee chair and the superintendent indicated, but without a firm commitment, that they will try for October. I believe it is critical, given the recent tests that have exceeded if not far exceeded the thresholds described in the Operating and Maintenance plan.

The environmental consults (EH&E) have indicated that Room #4 should be fine under the assumption that cold weather will reduce PCB emissions, but there is no evidence of a statistically significant relation between ambient temperature and PCB levels for that room. Such a relationship appears to hold at the school level and in other rooms. But children have to be in a specific room; they do not inhabit the "average" room. There is, however, a very strong, positive, and statistically significant relationship between time and PCB levels: the problem is getting worse over time. I sent my statistical analysis to the school committee and to EH&H, which replicated the finds in a report dated 9/6/13; the report was designed to respond to my questions to the Lexington School Committee. The EH&E report concluded, that Room #4 had minimal risk under the assumption that there was a relationship between PCBs and temperature, which has not been shown to exist. The absence of such a relationship could be due to either limited statistical power (few #s of observations and few observations from cold days) or an absence of a temperature response—Room #4 could be different. Unlike EH&E, I don't feel comfortable making recommendations based on data we believe is true but is not supported by the facts in our possession; I prefer to do it based on what we have observed to date which is a series of above-threshold results that are getting worse over time. I have been waving the flag about Room #4 for almost a year now. I sincerely hope that a temperature relationship exists, but the facts don't yet support such an assertion.

As you know given the experience in New Bedford High School, there are rooms that for whatever reason do not respond to remediation efforts, do not "behave" like other rooms in the same school, and accordingly represent potential dangers—the solution of which may be to close the room

In summary, I hope you will encourage the Lexington School Committee to conduct tests in October as planned, to monitor the situation closely particularly with regard to Rooms #4 and #6, and to test again in November under colder conditions, if necessary.

I am happy to discuss this matter if that would be helpful.

Sincerely,
Ben Esty

PS: I am happy to share my concerns with and critique of EH&E's report dated 9/6/13 and the forecasts that appear in Table #1 (these forecasts are what serve as the basis for their conclusion that Room #4 represents a "de minimis to children. As an example, Model #1 predicts a level of 94ng/m3. But out of 10 tests over the last 3 years, there has **NEVER** been a test result under 100ng/m3 (see Figure 1). In fact the last three tests have all been over 250ng/m3, well above the school-year average guidance of 230ng/m3. It is just not a credible model.

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-----Original Message-----
From: Esty, Benjamin
Sent: Wednesday, September 28, 2011 10:01 AM
To: 'Tisa.Kimberly@epamail.epa.gov'
Subject: RE: Lexington Estabrook School & PCB Testing

Dear Ms. Tisa:

Thanks for your very prompt reply--I appreciate it.

I do hope you will push very hard to verify the critical, yet largely unsubstantiated assumption of "identical classrooms" underlying the EH&E analysis and the town's Operation and Maintenance Plan. In this case, the cost of verification (additional testing) seems very low compared to the cost of being wrong (young children being exposed to known hazards). With another 20-25 tests on "at risk" classrooms and in varying temperature conditions, I think we will learn considerably more and will provide a much greater level of confidence for concerned parents. As we get new test results, I hope the proposed O&M plan has contingencies built into it regarding what to do if we get more surprising and alarming results.

Again, I am very willing to discuss my concerns or explore the statistical analysis with you or an EPA statistician, as you see appropriate.

Regards,
Ben Esty

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Ph: (781) 274-6350
E-mail: besty@hbs.edu-----Original Message-----
From: Tisa.Kimberly@epamail.epa.gov [mailto:Tisa.Kimberly@epamail.epa.gov]
Sent: Wednesday, September 28, 2011 6:35 AM
To: Patrick Goddard
Cc: Esty, Benjamin; dmacintosh@eheinc.com
Subject: RE: Lexington Estabrook School & PCB Testing

Thank you for the information, Mr. Goddard.

I did receive Mr. Esty's e-mail regarding increasing the air samples to be collected as part of Estabrook's LT O&M plan. EPA recognizes and appreciates the school's commitment to ensuring a safe environment for students and staff at Estabrook.

With that said, EPA is reviewing your recent air testing results and the revised O&M plan (with inclusion of the additional samples proposed
below.) Should I have any questions or require any additional
information on the plan, I will give you a call. I also would appreciate seeing the October sampling plan prior to its implementation.

As I indicated in our discussion in August, I would like to have a
further discussion with Dr. MacIntosh regarding methods. If there is
an opportunity either tomorrow or next week, I would appreciate a call to discuss further.

Should you have any further questions, please don't hesitate to call.

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From: "Patrick Goddard"
To: "Esty, Benjamin" , Kimberly
Tisa/R1/USEPA/US@EPA
Cc:
Date: 09/27/2011 06:27 PM
Subject: RE: Lexington Estabrook School & PCB Testing

Ms. Tisa,

We held a PTA meeting last night to discuss status of the PCB effort at Estabrook School and the progress on the MSBA Feasibility Study to address school deficiencies identified in the Statement of Interest.

As you recall, after having very stable PCB measurements throughout the winter, we saw increased measures during May and June. Our Advisory Committee and EH&E developed additional tests to determine if we could determine if we could lower these readings. Through these additional tests EH&E reported that the increase in ambient temperature appeared to be the cause of the increased PCB measures, and that by implementing four changes in our O&M Plan we could manage the concentration and achieve a school year average of approximately 115 to 125 ng/m3.

These changes were included in the recently submitted version 2 of the O&M Plan. We have not changed the number of air samples in the O&M Plan through all three versions.

Last night several parents asked for the number of air samples to be increased so that more information could be obtained on specific classrooms. The Superintendent, Dr. Ash, assured the audience that we would increase the number of samples from the 27 in the O&M Plan to about 40 since this was a concern for the parents.

EH&E is now developing a sampling plan for October so that we can have a set of sample that are in the 60/70 F ambient range to fill in "gaps" in the ambient temperature/ PCB ng/m3 profile and to increase the number of samples to meet the concerns expressed by Estabrook parents.

As I mentioned last week, I believe we have submitted all of the information requested in order for the O&M Plan to be reviewed. Let me know if you would like to discuss any of the information.

Mr. Esty, thank you for copying myself and Dr. MacIntosh on your correspondence with Ms. Tisa.

Regards,

Pat Goddard

From: Esty, Benjamin [mailto:besty@hbs.edu]
Sent: Tuesday, September 27, 2011 12:50 PM
To: tisa.kimberly@epa.gov
Cc: Patrick Goddard; dmacintosh@eheinc.com
Subject: Lexington Estabrook School & PCB Testing
Importance: High

Dear Ms. Tisa:

As the parent of a child in Lexington's Estabrook Elementary School, I am writing to urge that you require additional air testing at the school over the coming school year largely as a matter of science, but also as a matter of assurance for concerned parents. I raised this issue at last night's school committee/PTA meeting, and seem to have gotten agreement from Dr. Ash (the superintendent) and the environmental consultants—I deeply appreciate their willingness to consider additional testing. That said, I am writing you with the hope that you will reinforce the need for additional testing rather than approving a much lower level of air testing as recommended in the town's revised Operation and Maintenance Plan (O&M plan). Without a doubt, there has been an enormous amount of work done on this matter by the town, the school officials, and your office for which we are very grateful. We all have the same goal—a safe and effective learning environment—and I believe we are headed in that direction, with just a few disagreements on the correct path forward.

After completing approximately 240 air samples tests last year, the town's revised "Operation and Maintenance Plan" calls for something like only 27 tests this coming year. A 90% reduction in air testing does not seem appropriate in the face of the somewhat surprising and very troubling results observed in June and July 2011. (See the attached sheet showing the test results for rooms 2, 4, 20, 21B, 22, and the library).

The plan submitted by the town and its environmental consultants (EH&E) makes one critical assumption: all of the classrooms are identical (i.e., they have equal levels of PCP contamination). Based on this one key assumption, they propose a testing methodology for the coming year and a forecasting methodology that shows the average classroom will have an average contamination rate below the 230ng/m3 limit prescribed by your office. Yet we know from past test results (see attached), that some rooms have had dramatically higher PCP levels over time, and we are still observing dramatically different levels in the most recent tests
(July 2011). Moreover, at least two of the rooms in question (Rooms 2

and 4) house the smallest (and therefor most vulnerable) children—the kindergarten classes. These children have the lowest exposure thresholds and, therefore, require extra protection.

Unfortunately, and critically, EH&E does not have sufficient within room data to justify the claim that all rooms are identical. While it is possible that the rooms are identical (i.e., they are not statistically different), a much more likely explanation is that the consultants have employed (and are relying upon for their proposed maintenance plan) weak statistical tests that are not able to differentiate PCP levels among the various rooms: with only 3-5 observations per classroom since November 2010, the tests don't have the ability to distinguish one classroom form another. In statistical terms, they have used VERY low power tests, and are unable to reject the null hypothesis that the rooms are equivalent. As a result, we may have a very serious "type II" error here.

A second, but less important issue is the impact of temperature. Most of post-remediation testing has been done in cold-weather when PCP emissions are lower. The recent warm weather tests illustrate the need for more warm and moderate temperature testing.

From my perspective, both as a parent and as someone who has studied a lot of statistics, the obligation should be to protect the children in the worst rooms, not in the average room. We need to know that all children (and staff) are safe, not just the children in the average or the low contamination rooms. And testing levels of >500ng/m3 really deserve greater investigation and a higher burden of proof. In short, I just don't feel comfortable with the assumption that all rooms are equal and don't think EH&H has met the burden of proof to asset this claim or to utilize this very critical assumption.

I therefore ask you to review this issue before approving the revised O&M plan for Estabrook School. A possible action plan would be to ask for ~20 additional tests in addition to the ones currently planned by EH&E. Ideally, these additional tests would be completed very soon:

1) Early October (as soon as possible), test rooms 2, 4, 20, 21B, 22, and the library
2) Early November, test rooms 1, 3, 5, 6, 13, 21A, 24, 39B, and 39C
3) Early December test the teacher work rooms, art room, music room, SPED office, and Hall office

Even with ~50 tests (27 planned plus ~20 additional), we are still showing a dramatic reduction in the number of tests from last year (we are still down ~80% in testing). I think the additional testing will go a long way in appeasing nervous parents on this very emotional, very complicated, and very serious issue.

I would be happy to discuss this matter with you if that is appropriate.

Regards,
Ben Esty

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